Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

April 26, 2016

Meagan E. Ormand
Golder Associates Inc.
2108 W. Laburnum Ave.
Suite 200
Richmond, VA 23227

RE: Project: BREMO
Pace Project No.: 92295105

Dear Meagan Ormand:
Enclosed are the analytical results for sample(s) received by the laboratory on April 25, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
Project Manager

Enclosures

cc: Ron DiFrancesco, Golder Associates Inc.
Mike Williams, Golder Associates Inc

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: BREMO
Pace Project No.: 92295105

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Asheville Certification IDs
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BREMO
Pace Project No.: 92295105

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92295105001	**T3-160425-1125-S3**	EPA 1664B	JMS	1	PASI-C
		EPA 200.7	MEW	1	PASI-O
		Trivalent Chromium Calculation	HEA	1	PASI-O
		EPA 200.8	CKJ	10	PASI-O
		EPA 245.1	HVK	1	PASI-A
		SM 2540D	MJP	1	PASI-A
		EPA 218.6	TK1	1	PASI-O
		EPA 350.1	AES2	1	PASI-A
		SM 4500-Cl-E	AES2	1	PASI-A
92295105002	**T4-160425-1200-S3**	EPA 1664B	JMS	1	PASI-C
		EPA 200.7	MEW	1	PASI-O
		Trivalent Chromium Calculation	HEA	1	PASI-O
		EPA 200.8	CKJ	10	PASI-O
		EPA 245.1	HVK	1	PASI-A
		SM 2540D	MJP	1	PASI-A
		EPA 218.6	TK1	1	PASI-O
		EPA 350.1	AES2	1	PASI-A
		SM 4500-Cl-E	AES2	1	PASI-A

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **EPA 1664B**
Description: HEM, Oil and Grease
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for EPA 1664B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **EPA 200.7**
Description: 200.7 MET ICP
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **Trivalent Chromium Calculation**
Description: Trivalent Chromium Calculation
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **SM 2540D**
Description: 2540D TSS, Low-Level
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **EPA 218.6**
Description: Hexavalent Chromium 28 Day
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for EPA 218.6. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/57240

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92295105002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1553683)
  - Chromium, Hexavalent
- MSD (Lab ID: 1553684)
  - Chromium, Hexavalent

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **EPA 350.1**
Description: 350.1 Ammonia
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for EPA 350.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: BREMO
Pace Project No.: 92295105

Method: **SM 4500-Cl-E**
Description: 4500 Chloride
Client: Golder_Dominion_Bremo
Date: April 26, 2016

General Information:
2 samples were analyzed for SM 4500-Cl-E. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: BREMO
Pace Project No.: 92295105

Sample: T3-160425-1125-S3 **Lab ID: 92295105001** Collected: 04/25/16 11:25 Received: 04/25/16 14:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:							
Collected By	**M. Ormand**			1		04/25/16 11:31		
Collected Date	**4/25/16**			1		04/25/16 11:31		
Collected Time	**11:31**			1		04/25/16 11:31		
Field pH	**8.2**	Std. Units	0.10	1		04/25/16 11:31		
HEM, Oil and Grease	Analytical Method: EPA 1664B							
Oil and Grease	ND	mg/L	5.0	1		04/26/16 08:16		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Tot Hardness asCaCO3 (SM 2340B	**33900**	ug/L	3300	1	04/26/16 12:15	04/26/16 17:23		
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	ND	ug/L	5.0	1		04/26/16 16:59	16065-83-1	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:37	7440-36-0	
Arsenic	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:37	7440-38-2	
Cadmium	ND	ug/L	1.0	1	04/26/16 12:15	04/26/16 15:37	7440-43-9	
Copper	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:37	7440-50-8	
Lead	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:37	7439-92-1	
Nickel	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:37	7440-02-0	
Selenium	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:37	7782-49-2	
Silver	ND	ug/L	0.40	1	04/26/16 12:15	04/26/16 15:37	7440-22-4	
Thallium	ND	ug/L	1.0	1	04/26/16 12:15	04/26/16 15:37	7440-28-0	
Zinc	ND	ug/L	25.0	1	04/26/16 12:15	04/26/16 15:37	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.10	1	04/26/16 11:50	04/26/16 14:46	7439-97-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D							
Total Suspended Solids	**8.6**	mg/L	2.0	1		04/26/16 10:52		
Hexavalent Chromium 28 Day	Analytical Method: EPA 218.6							
Chromium, Hexavalent	ND	ug/L	25.0	5		04/26/16 12:19	18540-29-9	
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	ND	mg/L	0.20	1		04/26/16 12:08	7664-41-7	
4500 Chloride	Analytical Method: SM 4500-Cl-E							
Chloride	**63.7**	mg/L	20.0	2		04/26/16 12:27	16887-00-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BREMO
Pace Project No.: 92295105

Sample: T4-160425-1200-S3 **Lab ID: 92295105002** Collected: 04/25/16 12:00 Received: 04/25/16 14:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:							
Collected By	**M. Ormand**			1		04/25/16 12:08		
Collected Date	**4/25/16**			1		04/25/16 12:08		
Collected Time	**12:08**			1		04/25/16 12:08		
Field pH	**8.1**	Std. Units	0.10	1		04/25/16 12:08		
HEM, Oil and Grease	Analytical Method: EPA 1664B							
Oil and Grease	ND	mg/L	5.0	1		04/26/16 08:17		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Tot Hardness asCaCO3 (SM 2340B	**98000**	ug/L	3300	1	04/26/16 12:15	04/26/16 17:35		
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	ND	ug/L	5.0	1		04/26/16 16:59	16065-83-1	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:40	7440-36-0	
Arsenic	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:40	7440-38-2	
Cadmium	ND	ug/L	1.0	1	04/26/16 12:15	04/26/16 15:40	7440-43-9	
Copper	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:40	7440-50-8	
Lead	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:40	7439-92-1	
Nickel	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:40	7440-02-0	
Selenium	ND	ug/L	5.0	1	04/26/16 12:15	04/26/16 15:40	7782-49-2	
Silver	ND	ug/L	0.40	1	04/26/16 12:15	04/26/16 15:40	7440-22-4	
Thallium	ND	ug/L	1.0	1	04/26/16 12:15	04/26/16 15:40	7440-28-0	
Zinc	ND	ug/L	25.0	1	04/26/16 12:15	04/26/16 15:40	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.10	1	04/26/16 11:50	04/26/16 14:53	7439-97-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D							
Total Suspended Solids	**2.2**	mg/L	1.0	1		04/26/16 10:52		
Hexavalent Chromium 28 Day	Analytical Method: EPA 218.6							
Chromium, Hexavalent	ND	ug/L	5.0	1		04/26/16 12:03	18540-29-9	M1
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	ND	mg/L	0.20	1		04/26/16 12:12	7664-41-7	
4500 Chloride	Analytical Method: SM 4500-Cl-E							
Chloride	**55.6**	mg/L	20.0	2		04/26/16 12:29	16887-00-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

QC Batch: GCSV/24790 Analysis Method: EPA 1664B
QC Batch Method: EPA 1664B Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 92295105001, 92295105002

METHOD BLANK: 1719183 Matrix: Water
Associated Lab Samples: 92295105001, 92295105002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	04/26/16 08:11	

LABORATORY CONTROL SAMPLE: 1719184

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	39.3	98	78-114	

MATRIX SPIKE SAMPLE: 1719185

Parameter	Units	92293637004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	40	37.0	92	78-114	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

QC Batch: MERP/9306 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 92295105001, 92295105002

METHOD BLANK: 1719156 Matrix: Water
Associated Lab Samples: 92295105001, 92295105002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	04/26/16 14:41	

LABORATORY CONTROL SAMPLE: 1719157

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.6	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1719158 1719159

Parameter	Units	92295105001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.5	2.6	101	102	70-130	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1719160 1719161

Parameter	Units	92295109009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.5	2.5	99	100	70-130	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

QC Batch: MPRP/30071 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET
Associated Lab Samples: 92295105001, 92295105002

METHOD BLANK: 1553361 Matrix: Water
Associated Lab Samples: 92295105001, 92295105002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3300	04/26/16 17:16	

LABORATORY CONTROL SAMPLE: 1553362

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	84600	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1553363 1553364

Parameter	Units	92295105001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Tot Hardness asCaCO3 (SM 2340B	ug/L	33900	82700	82700	116000	116000	99	99	70-130	0	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

QC Batch: MPRP/30070 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 92295105001, 92295105002

METHOD BLANK: 1553234 Matrix: Water
Associated Lab Samples: 92295105001, 92295105002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	5.0	04/26/16 15:25	
Arsenic	ug/L	ND	5.0	04/26/16 15:25	
Cadmium	ug/L	ND	1.0	04/26/16 15:25	
Copper	ug/L	ND	5.0	04/26/16 15:25	
Lead	ug/L	ND	5.0	04/26/16 15:25	
Nickel	ug/L	ND	5.0	04/26/16 15:25	
Selenium	ug/L	ND	5.0	04/26/16 15:25	
Silver	ug/L	ND	0.40	04/26/16 15:25	
Thallium	ug/L	ND	1.0	04/26/16 15:25	
Zinc	ug/L	ND	25.0	04/26/16 15:25	

LABORATORY CONTROL SAMPLE: 1553235

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	50	48.4	97	85-115	
Arsenic	ug/L	50	50.5	101	85-115	
Cadmium	ug/L	5	4.8	97	85-115	
Copper	ug/L	50	52.3	105	85-115	
Lead	ug/L	50	48.6	97	85-115	
Nickel	ug/L	50	51.4	103	85-115	
Selenium	ug/L	50	53.0	106	85-115	
Silver	ug/L	5	5.0	99	85-115	
Thallium	ug/L	50	50.9	102	85-115	
Zinc	ug/L	250	265	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1553236 1553237

Parameter	Units	35240900001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Antimony	ug/L	0.58J	50	50	50.3	48.0	99	95	70-130	5	
Arsenic	ug/L	7.9	50	50	57.4	56.0	99	96	70-130	2	
Cadmium	ug/L	0.050U	5	5	5.1	4.7	101	93	70-130	8	
Copper	ug/L	0.76J	50	50	50.1	49.3	99	97	70-130	2	
Lead	ug/L	0.50U	50	50	50.2	49.2	100	98	70-130	2	
Nickel	ug/L	6.7	50	50	55.7	54.4	98	95	70-130	2	
Selenium	ug/L	0.50U	50	50	50.7	48.6	101	97	70-130	4	
Silver	ug/L	0.050U	5	5	4.8	4.7	96	93	70-130	3	
Thallium	ug/L	0.50U	50	50	52.7	51.7	105	103	70-130	2	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1553236			1553237						
Parameter	Units	35240900001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Zinc	ug/L	34.3	250	250	272	267	95	93	70-130	2	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

QC Batch: WET/44492 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 92295105001, 92295105002

METHOD BLANK: 1719373 Matrix: Water
Associated Lab Samples: 92295105001, 92295105002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	04/26/16 10:51	

LABORATORY CONTROL SAMPLE: 1719374

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	248	99	90-110	

SAMPLE DUPLICATE: 1719375

Parameter	Units	92295105001 Result	Dup Result	RPD	Qualifiers
Total Suspended Solids	mg/L	8.6	8.6	0	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

QC Batch: WETA/57240 Analysis Method: EPA 218.6
QC Batch Method: EPA 218.6 Analysis Description: Chromium, Hexavalent by IC 28 Day
Associated Lab Samples: 92295105001, 92295105002

METHOD BLANK: 1553681 Matrix: Water
Associated Lab Samples: 92295105001, 92295105002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	ND	5.0	04/26/16 15:39	

LABORATORY CONTROL SAMPLE: 1553682

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	ug/L	.075	.07J	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1553683 1553684

Parameter	Units	92295105002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	ug/L	ND	.075	.075	.12J	.12J	86	82	90-110	3	M1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

QC Batch: WETA/27364 Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia
Associated Lab Samples: 92295105001, 92295105002

METHOD BLANK: 1719421 Matrix: Water
Associated Lab Samples: 92295105001, 92295105002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.20	04/26/16 12:05	

LABORATORY CONTROL SAMPLE: 1719422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1719423 1719424

Parameter	Units	92295105001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.0	5.0	100	100	90-110	0	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BREMO
Pace Project No.: 92295105

QC Batch: WETA/27363 Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E Analysis Description: 4500 Chloride
Associated Lab Samples: 92295105001, 92295105002

METHOD BLANK: 1719228 Matrix: Water
Associated Lab Samples: 92295105001, 92295105002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	10.0	04/26/16 12:15	

LABORATORY CONTROL SAMPLE: 1719229

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.7	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1719230 1719231

Parameter	Units	92295105001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chloride	mg/L	63.7	10	10	73.7	73.1	99	94	90-110	1	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: BREMO
Pace Project No.: 92295105

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BREMO
Pace Project No.: 92295105

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92295105001	**T3-160425-1125-S3**		FLD/		
92295105002	**T4-160425-1200-S3**		FLD/		
92295105001	**T3-160425-1125-S3**	EPA 1664B	GCSV/24790		
92295105002	**T4-160425-1200-S3**	EPA 1664B	GCSV/24790		
92295105001	**T3-160425-1125-S3**	EPA 200.7	MPRP/30071	EPA 200.7	ICP/17959
92295105002	**T4-160425-1200-S3**	EPA 200.7	MPRP/30071	EPA 200.7	ICP/17959
92295105001	**T3-160425-1125-S3**	Trivalent Chromium Calculation	ICP/17962		
92295105002	**T4-160425-1200-S3**	Trivalent Chromium Calculation	ICP/17962		
92295105001	**T3-160425-1125-S3**	EPA 200.8	MPRP/30070	EPA 200.8	ICPM/12173
92295105002	**T4-160425-1200-S3**	EPA 200.8	MPRP/30070	EPA 200.8	ICPM/12173
92295105001	**T3-160425-1125-S3**	EPA 245.1	MERP/9306	EPA 245.1	MERC/8941
92295105002	**T4-160425-1200-S3**	EPA 245.1	MERP/9306	EPA 245.1	MERC/8941
92295105001	**T3-160425-1125-S3**	SM 2540D	WET/44492		
92295105002	**T4-160425-1200-S3**	SM 2540D	WET/44492		
92295105001	**T3-160425-1125-S3**	EPA 218.6	WETA/57240		
92295105002	**T4-160425-1200-S3**	EPA 218.6	WETA/57240		
92295105001	**T3-160425-1125-S3**	EPA 350.1	WETA/27364		
92295105002	**T4-160425-1200-S3**	EPA 350.1	WETA/27364		
92295105001	**T3-160425-1125-S3**	SM 4500-Cl-E	WETA/27363		
92295105002	**T4-160425-1200-S3**	SM 4500-Cl-E	WETA/27363		

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: 26FEB2016 Page 1 of 2
	Document No.: F-MEC-CS-009-rev.02	Issuing Authority: Pace Mechanicsville Quality Office

WO# : 92295105

92295105

Sample Condition Upon Receipt

Client Name: Golder

Project #

Courier: ☐ Commercial ☐ Fed Ex ☑ Pace ☐ UPS ☐ USPS ☐ Other:____ ☐ Client

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:____

Date/Initials Person Examining Contents: 4-25-16 RSB

Thermometer: ☒ RMD001 ☐ ____ Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: 0.0°C Cooler Temp Corrected (°C): 3.2 Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☑ Yes	☐ No	☐ N/A	7. 1 day TAT
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WW				
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☐ Yes	☐ No	☐ N/A	
Samples checked for dechlorination	☐ Yes	☐ No	☑ N/A	14.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	16.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased): ____				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: ____ Date/Time: ____

Comments/Resolution: ____

Project Manager SCURF Review: NMG Date: 4/25/16

Project Manager SRF Review: NMG Date: 4/26/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain of Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A — Required Client Information:

- Company: Golder assoc.
- Address: 2108 W Laburnum Ave Ste 200, Richmond, VA 23227
- Email To: mormund@golder.com
- Phone: 804-551-0124 Fax: 804-358-146
- Requested Due Date/TAT: 24 Hr

Section B — Required Project Information:

- Report To: mormund@golder.com
- Copy To: ron-difrancesco@golder.com
- Purchase Order No.:
- Project Name: Bremo
- Project Number: 1520347.200

Section C — Invoice Information:

- Attention: Accounts Payable
- Company Name: Golder Assoc.
- Address:
- Pace Quote Reference:
- Pace Project Manager:
- Pace Profile #:

REGULATORY AGENCY: NPDES / GROUND WATER / DRINKING WATER / UST / RCRA / OTHER ______

Site Location STATE: VA

Section D — Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Free Cyanide	200.7 metals (Al, Ba, Be, B, Co, Fe, Mo, V)	TSS	Chloride, O+G	Ammonia	200.8 metals (As, Sb, Cd, Cu, Pb, Ni, Se, Ag, Th, Zn)	Hex Cr, Tri Cr	Mercury	Hardness	Residual Chlorine (Y/N)	Pace Project No./Lab I.D. 92295105
1	T3-160425-1125-53	WW	G			4/25/16	1125												✓	✓	✓	✓	✓	✓	✓	✓	✓		pH=8.2 time=1131 001
2	T4-160425-1200-53	WW	G			4/25/16	1200												✓	✓	✓	✓	✓	✓	✓	✓	✓		pH=8.1 time=1208 002
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	4/25/16	1455	[signature]	4.25	14:55	3.2	Y	N	Y

SAMPLER NAME AND SIGNATURE

- PRINT Name of SAMPLER: M Ormand
- SIGNATURE of SAMPLER: [signature]
- DATE Signed (MM/DD/YY): 4/25/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007